

Lower Passaic River Study Area Upper 9-Mile Interim Remedy

Proposed Current Conditions Sampling Program
Development

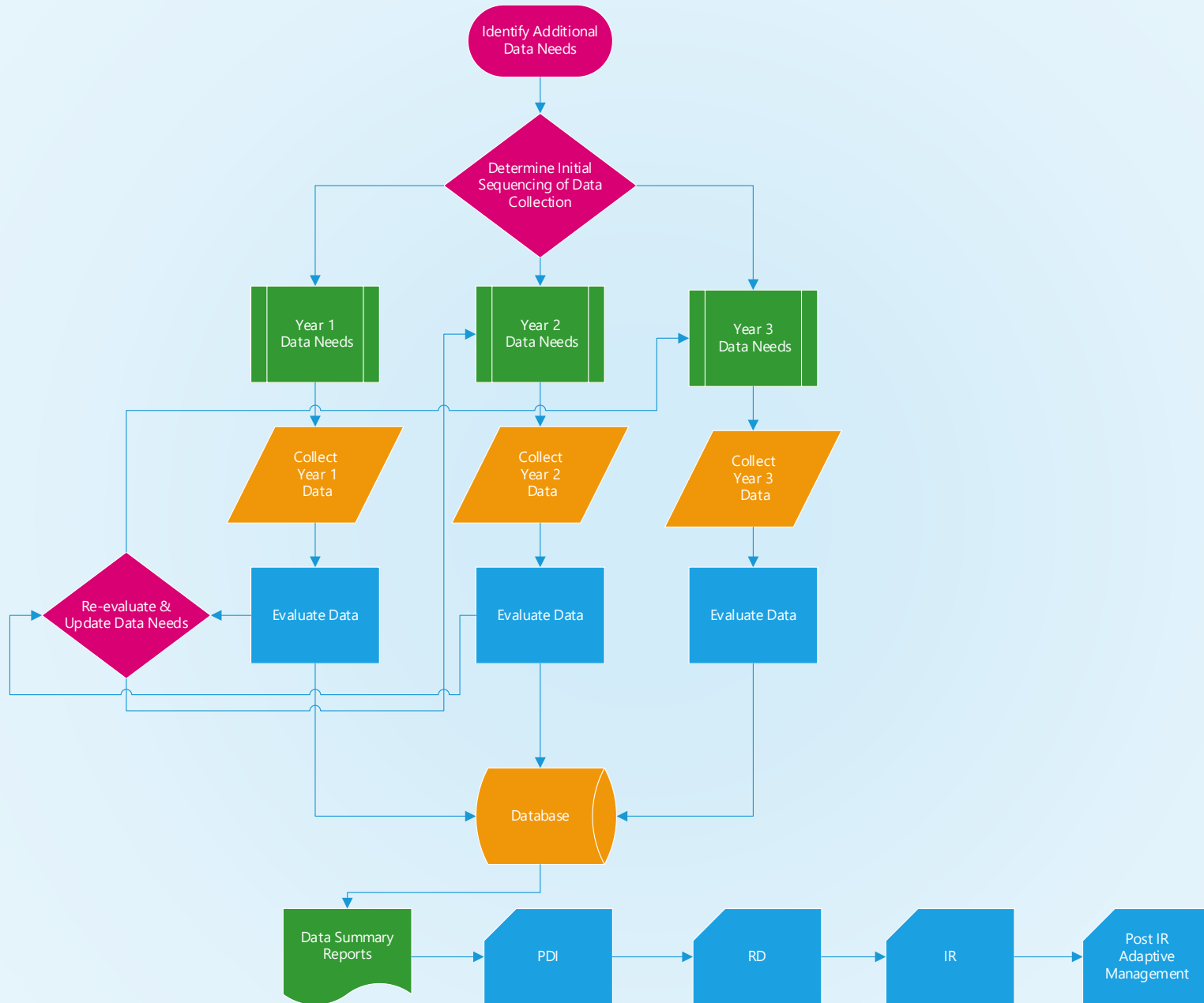
March 21, 2019

Background – Current Conditions Sampling

- CSTAG in April 2018 recommended collection of baseline (current conditions) data:
 - Surface water and biota in the upper 9 miles over a three year period
 - Conduct 1 year of sediment sampling which could be the PDI data set
- Region 2's February 2019 letter:
 - *“recommends that the current conditions sampling be implemented over three field sampling seasons in 2019, 2020, and prior to the start of lower 8.3 remedial activities in 2021.”*
 - *“directs the CPG to prepare and submit all planning documents necessary for sampling to commence”*
- CPG is identifying and scoping sampling activities to establish current conditions in the upper 9 miles to occur over the course of 3 years

Current Conditions Sampling – Adaptive Approach

- Employ an adaptive management approach to develop and identify the study questions and data needs for the 3 years of current conditions sampling:
 - Identify data needs through an initial QAPP(s) and QAPP Addenda rather than a single multi-year QAPP
 - Evaluate data annually following Year 1 and Year 2 and identify/modify planned data acquisition in the subsequent year's QAPP Addendum
- Update and amend existing 17-Mile RI Project QAPPs; develop new QAPPs as needed
- Develop and update analytical laboratory, survey and monitoring resources for PDI, IR & Post-IR Adaptive Management data collection and analysis
- Acquire current conditions data in the upper 9 miles to support:
 - PDI Development
 - Remedial Design
 - IR Implementation
 - Post IR Adaptive Management Phase



Current Conditions Sampling - Data Needs

- Assessment of current conditions and recovery of surface water, sediment & biota since the last bathymetry survey in 2012 and the last intensive sampling of the upper 9-miles of the LPR during the 2008 to 2013 period
- Refinement of the LPR hydrodynamic, sediment transport, and contaminant fate & transport models
- Refinement of the LPR food web model (FWM)
 - Reconnaissance-level survey to investigate the relative vertical position of benthic community abundance and biomass within the biologically active zone (BAZ) in the upper 9 miles of the LPR
 - Address potential FWM peer review data needs

Current Conditions Sampling Program Data Acquisition

Upper 9 Miles	Year 1	Year 2	Year 3
Bathymetry	Baseline Bathymetry/LiDAR Side-Scan Sonar	Additional Bathymetry/LiDAR/Side-Scan Sonar (following high flow > 10K cfs)	
Sediment		Co-located Sediment w/ Benthic Invertebrate Community	PDI Sediment Data (Follows IR ROD/AOC)
Surface Water	Physical Data Collection Chemical Data Collection	High Flow Event Sampling	Physical Data Collection Chemical Data Collection
Biota	Fish & Crab Tissue Chemistry	Benthic Invertebrate Community FWM Data Needs from Peer Review	Fish & Crab Tissue Chemistry

Potential Current Conditions Sampling Elements – Upper 9 Miles

- Bathymetry
 - Sediment bed texture mapping
- Sediment
 - Co-located Sediment w/ Benthic Invertebrate Community (see below)
 - PDI Sediment Data (following IR ROD/AOC)
- Water Column Monitoring – Physical & Chemical
 - Cross channel transects
 - Along-channel transects
 - Moorings
 - Below Dundee Dam
- Biota Sampling
 - Fish & Crab Tissue
 - Benthic Invertebrate Community

Current Conditions Sampling – Data Elements & Uses

- Upper 9 Mile Data Elements and their Uses

Element	Modeling Support				Current Conditions/ Recovery
	Hydrodynamic	Sediment Transport	Fate	Food web	
Bathymetry, LiDAR, Side-Scan Sonar	■				
Sediment		■	■	■	■
Surface Water – Physical & Chemical	■	■	■	■	■
Biota				■	■

Existing QAPPs Supporting Upper 9 Mile Current Conditions

- Bathymetry, LiDAR & Side-Scan Sonar – Current
- Sediment – AECOM & Windward – Require Updating
- Water Column Monitoring – Physical & Chemical – Require Updating
- Biota – Fish & Decapod Crustacean QAPP & Addenda – Require Updating